

Cover Crops - Benefits and Challenges

Fruit Growers Victoria Techsheet #2

Cover crops may be grown in the inter-row of an orchard for a variety of reasons. We outline some of the benefits and challenges in selecting, sowing and maintaining a cover crop in a commercial orchard setting.

Cover Crops Potential benefits

- Food & Habitat for insects
- Ground cover with living roots - water infiltration, temperature
- Build microbial diversity towards disease suppressive soils
- Nutrient availability
- Rebound after rainfall/drought conditions
- Improve soil carbon levels
- Reduced use of herbicide

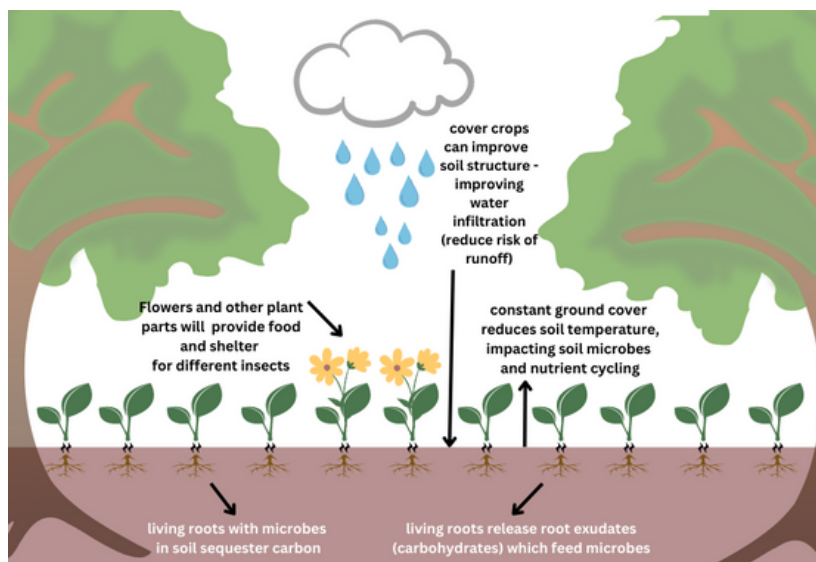
Possible Challenges

- Lack of current research in orchard commercial setting
- Lack of tools available for decision making
- Machinery available for sowing
- Competition with existing species and establishment



Some factors to consider when selecting cover crop types

- Micro-climate, soil type
- Land management practices: spraying, tillage, orchard traffic
- One or multispecies
- Flowering Times (pollination)
- Competition with species or with main crop (water/nutrient)
- Host to pest or disease
- Ongoing plan: annual, perennial, mowing/spraying/rolling



Potential Benefit	Further Comments
Insects	wasp parasitoids can use nectar and pollen as food source, if some areas left to grow can be used a shelter for insects
Soil - physical	living roots will help break up the soil and improve soil structure, reducing runoff, and improve water infiltration, ground cover will help regulate soil temperature
Soil - biological	living roots will release exudates which can feed microbes, diversity of species will help attract diverse microbial life
Soil - chemical	microbes can help release nutrients locked up in insoluble forms and make them plant available, improved water infiltration (and soil aeration) will also help nutrient availability
Herbicide use	'mow and throw' strategy can be used as understory mulch

References

- Bone, N., Thomson, L., Ridland, P., Cole, P., Hoffmann, A (2009). Cover crops in Victorian apple orchards: Effects on production, natural enemies and pests across a season. *Crop Protection*, **28**. 675-683
- Vukicevich, E., Lowery, T., Bowen, P., Ramon Úrbez-Torres, J., Hart, M (2016). Cover crops to increase soil microbial diversity and mitigate decline in perennial agriculture. A Review. *Agronomy for Sustainable Development*, **36**.



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